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NOTICE OF ALLOWANCE AND FEE(S) DUE

27045

7590

10/02/2009

ERICSSON INC.
6300 LEGACY DRIVE
M/S EVR 1-C-11
PLANO, TX 75024

EXAMINER

LEUNG, WAI LUN

ART UNIT

PAPER NUMBER

2613

DATE MAILED: 10/02/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,852	06/27/2006	Thomas Kallstenius	PI8947-US2	1345

TITLE OF INVENTION: TEMPERATURE COMPENSATION FOR TRANSMISSION BETWEEN NODES COUPLED BY A UNIDIRECTIONAL FIBER RING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/04/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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27045 7590 10/02/2009
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PLANO, TX 75024

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,852 06/27/2006

Thomas Kallstenius

P18947-US2

1345

TITLE OF INVENTION: TEMPERATURE COMPENSATION FOR TRANSMISSION BETWEEN NODES COUPLED BY A UNIDIRECTIONAL FIBER RING

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	01/04/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEUNG, WAI LUN	2613	398-025000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 575 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 575 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability**Application No.**

10/596,852

Examiner

DANNY W. LEUNG

Applicant(s)

KALLSTENIUS, THOMAS

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 5/20/2009.
2. ☒ The allowed claim(s) is/are 27-35,38-48,51 and 52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613

DETAILED ACTION

Reasons for Allowance

1. Claims 27-35, 38-48, and 51-52 are allowed, renumbered as claims 1-22.
2. The following is an examiner's statement of reasons for allowance:

Prior art made of record fails to teach,

Regarding Claim 27, A method for monitoring transmissions over a unidirectional optical fiber loop coupling multiple nodes wherein a first node is a main base station unit, including processing circuitry and a central clock source, and the one or more other nodes are remote base station units including radio transceiving circuitry for communicating over a radio interface with a mobile radio terminal, comprising the steps of:

measuring a round trip delay time for a signal sent from a said first node to travel around the unidirectional optical fiber loop and be received at the first node;

using the measured round trip delay time to account for temperature induced affects on signal transmissions over the unidirectional optical fiber loop and wherein the mobile terminal determines one or more round trip times (RTTs), said step further comprises:

the mobile terminal sending an RTT message to one of the remote base station units over the radio interface;

the one remote base station unit sending the RTT message to the main base station via the unidirectional optical fiber loop;

the main base station unit modifying the RTT message with a recently determined round trip delay time that accounts for temperature induced delay variations in the loop;

the main base station unit sending the modified RTT message to the remote base station via the unidirectional optical fiber loop;

the remote base station unit transmitting the modified RTT message to the mobile terminal over the radio interface; and

the mobile terminal determining the RTT based on the modified RIF message.

Regarding Claim 40, Apparatus for use in monitoring transmissions over a unidirectional optical fiber loop coupling multiple nodes wherein a first node is a main base station unit and the one or more other nodes are remote base station units including radio transceiving circuitry for communicating over a radio interface with a mobile radio terminal, comprising electronic circuitry operative to:

measure a round trip delay time for a signal sent from a first node to travel around the unidirectional optical fiber loop and be received at the first node; and,

account for temperature induced affects on signal transmissions over the unidirectional optical fiber loop using the measured round trip delay time; and

determining one or more round trip times (RTTs) wherein the mobile terminal is configured to send an RTT message to one of the remote base station units over the radio interface;

the one remote base station unit is configured to send the RTT message to the main base station unit via the unidirectional optical fiber loop;

the main base station unit is configured to modify the RTT message with a recently determined round trip delay time that accounts for temperature induced delay variations in the loop;

the main base station unit is configured to send the modified RTT message to the remote base station unit via the unidirectional optical fiber loop;

the remote base station unit is configured to transmit the modified RTT message to the mobile terminal over the radio interface; and,

the mobile terminal is configured to determine the RTT based on the modified RTT message.

Applicant's admitted prior art discloses an Apparatus for use in monitoring transmissions over a unidirectional optical fiber loop coupling multiple nodes (*fig 2, --Prior Art-- shows a unidirectional loop, with Main BS measuring Roundtrip Delay (RTD)*), comprising electronic circuitry operative to: measure a round trip delay time for a signal sent from a first node (*fig 2 --Prior Art--, Main BS*), to travel around the unidirectional optical fiber loop and be received at the first node (*fig 2 --Prior Art--, RTT signal goes around the loop clockwise, passing Remote BS, and received by the Main BS*); and, account for delay on signal transmissions over the unidirectional optical fiber

loop using the measured round trip delay time (*fig 2 --Prior Art--*, *Main BS with Central Clock System accounts for delay in the system by measuring Roundtrip Delay*),

Fellows et al. (*US005459607A*), teaches delay on signal transmission over optical fiber loop being caused by temperature induced affects is common and well known (*col 1, ln 19-27*, “*the delay path between sending clock of the main unit out to the remote location and receiving data back at the main unit (Round Trip Time) is long and dynamically changing due to changes in temperature which effects the equivalent and physical length of the fiber*”).

Otsuka et al. (*US005519710A*) teaches a method of time synchronizing the multiple nodes taking into account a determined delay time correction due to varying distances (*col 5, ln 18-35*, *site 2 and site 3 is synchronized by aligned with a correction delay time D1, which is derived from mobile unit in a constantly change locations with varying distance*);

determining a link time delay associated with one or more of the links and, using one or more determined link time delays in determining one or more time difference between the first node and the one or more other nodes (*col 6, ln 17-26*);

sending a timestamp message from one or more of the other nodes to the first node indicating a local time at that other node (*col 3, ln 30-39*, *timing advance message indicate the timing at the mobile unit*) and, determining a respective local time difference between the time in each received timestamp message and the local time at the first node (*col 4, ln 59-61*);

calculating a delay time correction for one or more of the nodes other than the first node ((col 6, ln 17-26, *delay time correction is calculated for all sites / nodes*), wherein the delay time is temperature-induced, as suggested by **Fellows** as discussed above.

Stange (US005493629A) teaches optical time domain reflectometry is a common and well known method used in determining the time delay associated with each link (col 4, ln 49-67).

However, none of the prior art cited above teaches determining one or more round trip times (RTTs) wherein the mobile terminal is configured to send an RTT message to one of the remote base station units over the radio interface;

the one remote base station unit is configured to send the RTT message to the main base station unit via the unidirectional optical fiber loop;

the main base station unit is configured to modify the RTT message with a recently determined round trip delay time that accounts for temperature induced delay variations in the loop;

the main base station unit is configured to send the modified RTT message to the remote base station unit via the unidirectional optical fiber loop;

the remote base station unit is configured to transmit the modified RTT message to the mobile terminal over the radio interface; and,

the mobile terminal is configured to determine the RTT based on the modified RTT message.

3. The examiner found no suggestions or motivations to combine similar teachings from prior art made of record to overcome the limitations as discussed above.
4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to temperature induced time delay in optical communication system in general:

(US-20070127919 or US-20050226214 or US-20050019031) or (US-7489638 or US-7349537 or US-7323677 or US-7274879 or US-7272309 or US-7123589 or US-6442140 or US-6356386 or US-6307988 or US-6195046 or US-5805983 or US-5633872 or US-5519710 or US-5513194 or US-5493629 or US-5459607 or US-5355368 or US-5317571 or US-5299044 or US-5210763 or US-5149961 or US-4893318 or US-4332026)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANNY W. LEUNG whose telephone number is (571)272-5504. The examiner can normally be reached on 10:00am-8:00pm Mon-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DANNY W LEUNG
Examiner
Art Unit 2613

10/2/2009
/D. W. L./
Examiner, Art Unit 2613

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613